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(74) Agent: HEISER, David, E.; E.I. Du Pont De Nemours and Company, 4417 Lancaster Pike, Wilmington, DE 19805 (US).

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(71) Applicant (for all designated States except US): E.I. DU PONT DE NEMOURS AND COMPANY [US/US]; 1007 Market Street, Wilmington, DE 19898 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): NAPPA, Mario, J. [US/US]; 3 Oakridge Court, Newark, DE 19711 (US). RAO, Vellyur, Nott, Mallikarjuna [US/US]; 1 Georgetown Avenue, Wilmington, DE 19809 (US). ROSENFELD, H., David [US/US]; 1927 Susquehannock Drive, Drumore, PA 17518 (US). SUBRAMONEY, Shekhar [IN/US]; 425 Stella Drive, Hockessin, DE 19707 (US). SUBRAMANIAN, Munirpallam, A. [US/US]; 20 Pratt Lane, Kennett Square, PA 19348 (US). SIEVERT, Allen, C. [US/US]; 215 Rhett Lane, Elkton, MD 21921 (US).

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(54) Title: PROCESSES FOR THE PREPARATION OF 2-CHLORO-1,1,1,2,3,3,3-HEPTAFLUOROPROPANE, HEXAFLUOROPROPENE AND 1,1,1,2,3,3,3-HEPTAFLUOROPROPANE

(57) **Abstract.** A process for the preparation of 2-chloro-1,1,1,2,3,3,3-heptafluoropropane is disclosed which involves (a) contacting a mixture comprising hydrogen fluoride, chlorine, and at least one starting material selected from the group consisting of halopropanes of the formula $\text{CX}_3\text{CCl}=\text{CX}_2$ and halopropanes of the formula the $\text{CX}_3\text{CCIYCX}_3$, wherein each X is independently F or Cl, and Y is H, Cl or F (provided that the number of X and Y which are F totals no more than six) with a chlorofluorination catalyst in a reaction zone to produce a product mixture comprising $\text{CF}_3\text{CClFCF}_3$, HCl, HF, and underfluorinated halogenated hydrocarbon intermediates. The process is characterized by said chlorofluorination catalyst comprising at least one chromium-containing component selected from (i) a crystalline alpha-chromium oxide where at least 0.05 atom % of the chromium atoms in the alpha-chromium oxide lattice are replaced by nickel, trivalent cobalt or both nickel and trivalent cobalt, provided that no more than 2 atom % of the chromium atoms in the alpha-chromium oxide lattice are replaced by nickel and that the total amount of chromium atoms in the alpha-chromium oxide lattice that are replaced by nickel and trivalent cobalt is no more than 6 atom %, and (ii) a fluorinated crystalline oxide of (i). Also disclosed is a process for the manufacture of a mixture of HFC-227ea and hexafluoropropene by reacting a starting mixture comprising CFC-217ba and hydrogen in the vapor phase at an elevated temperature, optionally in the presence of a hydrogenation catalyst. This process involves preparing the CFC-217ba by the process described above.